



Welcome to DialogClassic Web(tm)

Q58716-D112003(1)SPP

B 351

20nov03 09:07:54 User234214 Session D1541.1

Sub account: Q58716/SJM

File 351:Derwent WPI 1963-2003/UD,UM &UP=200374

(c) 2003 Thomson Derwent

Set Items Description

?

SS PN=US 5338818 OR PN=US 5422223 OR PN=US 5866306 OR PN=US 5385804 OR PN=US 5399462 OR
PN=US 5238773 OR PN=US 4481049

S1 1 PN=US 5338818

S2 1 PN=US 5422223

S3 1 PN=US 5866306

S4 1 PN=US 5385804

S5 1 PN=US 5399462

S6 1 PN=US 5238773

S7 1 PN=US 4481049

S8 7 PN=US 5338818 OR PN=US 5422223 OR PN=US 5866306 OR PN=US
5385804 OR PN=US 5399462 OR PN=US 5238773 OR PN=US
4481049

?

S S8

S9 7 S8

?

T S9/9/1-7

9/9/1

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

009995612 **Image available**

WPI Acc No: 1994-263323/199432

XRAM Acc No: C94-120516

XRPX Acc No: N94-207205

**Aryl-silsesquioxane polymers with acid sensitive pendant gps. - useful in
silicon-contg. positive resists for imaging in deep UV radiation, X-ray
or electron-beam lithography**

Patent Assignee: INT BUSINESS MACHINES CORP (IBM C); IBM CORP (IBM C)

Inventor: BRUNSVOLD W R; JAGANNATHAN P; MIURA S S; MONTGOMERY M W; SACHDEV

H S; SOORIYAKUMARAN R

Number of Countries: 002 Number of Patents: 003

Patent Family:

Patent No Kind Date Applicat No Kind Date Week

→ US 5338818 A 19940816 US 92943086 A 19920910 199432 B

→ JP 6184311 A 19940705 JP 93210073 A 19930825 199432
JP 2501292 B2 19960529 JP 93210073 A 19930825 199626

Priority Applications (No Type Date): US 92943086 A 19920910

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

US 5338818 A 6 C08G-077/00

JP 6184311 A 9 C08G-077/38

JP 2501292 B2 9 C08G-077/38 Previous Publ. patent JP 6184311

Abstract (Basic): US 5338818 A

An acid-sensitive polymer of formula (I) is new. In (I), $m = 0$ or 1 , $n =$ at least 3 and $R = H$ or gps. $-C(O)-O-X$ (where $X = s$ -alkyl, t -butyl, substd. deactivated s -benzyl or 1 -(deactivated heterocyclic) s -alkyl pendant gps.), the X contg. gps. and H being in a ratio of $15:85-50:50$.

Also claimed is a polymer as above in which $R = H$ or t -butyloxycarbonyl.

USE/ADVANTAGE - The polymers are as positive resists for the top imaging layer in a bilayer scheme or as the imaging layer in a single layer scheme in deep UV radiation, X-ray or electron beam lithography in integrated circuit prodn. High resolution and sensitivity are obtainable using resists formulated from the novel polymers and an acid generator, the resists can be etched using metal ion-free aq. alkali.

Dwg. 2a/2

Title Terms: ARYL; SILSESQUIOXANE; POLYMER; ACID; SENSITIVE; PENDANT; GROUP ; USEFUL; SILICON; CONTAIN; POSITIVE; RESIST; IMAGE; DEEP; ULTRAVIOLET; RADIATE; RAY; ELECTRON; BEAM; LITHO

Derwent Class: A26; A89; G06; L03; P84; U11

International Patent Class (Main): C08G-077/00; C08G-077/38

International Patent Class (Additional): C08L-083/06; G03F-007/075

File Segment: CPI; EPI; EngPI

Manual Codes (CPI/A-N): A12-E07C; A12-L02B2; G06-D01; G06-D06; L04-C05

Manual Codes (EPI/S-X): U11-A06A; U11-C04D

Polymer Indexing (PS):

<01>

001 017; D11 D10 D23 D22 D40 D46 D48 D50 D95 D94 F86 F81 F31 F30 F32 D35; P1445-R F81 Si; H0179; M9999 M2095-R; L9999 L2391; L9999 L2095-R; K9869 K9847 K9790; K9825 K9803 K9790; K9814 K9803 K9790; M9999 M2186; H0293; M9999 M2324; L9999 L2324; S9999 S1285-R

002 017; ND01; ND09; Q9999 Q8684 Q8673 Q8606; K9687 K9676; K9483-R; K9712 K9676; Q9999 Q7476 Q7330; N9999 N7181 N7023; B9999 B5469 B5403 B5276; B9999 B5243-R B4740

003 017; D01 D05 D07 D25 D22 D33 D41 D53 D51 D59 D90 D69 F61 F72 F- 7A; A999 A204

Derwent Registry Numbers: 0060-U

9/9/2

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

009911029 **Image available**

WPI Acc No: 1994-178735/199422

XRAM Acc No: C94-081616

XRPX Acc No: N94-140705

Novel silicone-contg negative photoresist f r deep UV ray or electron beam lithography - comprises poly(4-hydroxybenzyl) silsesquioxane polymer skeleton and aromatic azide gp bonded to phenol.

Patent Assignee: IBM CORP (IBMC); INT BUSINESS MACHINES CORP (IBMC)

Inventor: JAGANNATHAN P; SACHDEV H S; SOORIYAKUMARAN R

Number of Countries: 002 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
JP 6095385	A	19940408	JP 93159869	A	19930630	199422 B
US 5385804	A	19950131	US 92932830	A	19920820	199511
JP 2582521	B2	19970219	JP 93159869	A	19930630	199712

Priority Applications (No Type Date): US 92932830 A 19920820

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

JP 6095385 A 9 G03F-007/038

US 5385804 A 8 G03F-007/012

JP 2582521 B2 9 G03F-007/075 Previous Publ. patent JP 6095385

Abstract (Basic): JP 6095385 A

A photoresist comprises poly(4-hydroxybenzyl)silsesquioxane (PHBS) polymer skeleton and aromatic azide-contg gp which is bonded with the phenol gp in the polymer skeleton pref with a conjugated bond.

USE/ADVANTAGE - The photoresist is useful for producing semiconductor device, etc. The photoresist can be easily synthesised and developed with an aq base and has good reacting ion-etching resistance and high sensitivity to deep UV-rays, i-rays and E-beam.

In an example, 4.075 g p-azide benzoic acid was dissolved in 100 ml THF. The soln was stirred with 4.05 g 1,1'-carbonyl diimidazole in argon atmosphere for 2 hrs and added 15.9 g PBHS dissolved in 30 ml THF. The mixture was stirred for 10 hrs and the resultant liq phase was concentrated and dissolved in methanol. The methanol soln was stirred with 'IRN-78' (RTM:strongly basic ion-exchange resin) for 5 mins and filtered to remove the unreacted azide benzoic acid. The filtrate was poured into a large amt of deionised water to obtain the azide benzoic acid derivs as deposits.

Dwg.1/3

Abstract (Equivalent): US 5385804 A

A photoresist compsn. comprises a solvent in amt. more than 50 wt.%, and a condensation prod. of a polymer of formula (I) with an esterification rate of 5-95%, in which n is at least 3, and R2 is of formula (II), where A is H or an ester of an aromatic azide.

The compsn. pref. also contains a sensitiser.

USE/ADVANTAGE - Used as a top imaging layer in a bilayer substrate patterning scheme. The photoresist is easily synthesised and has aq. base developability, good O2 RIE resistance, and high sensitivity to DUV, I-line and E-beam exposures.

Dwg.0/3

Title Terms: NOVEL; SILICONE; CONTAIN; NEGATIVE; PHOTORESIST; DEEP;

ULTRAVIOLET; RAY; ELECTRON; BEAM; LITHO; COMPRISE; POLY; HYDROXYBENZYL; SILSESQUIOXANE; POLYMER; SKELETON; AROMATIC; AZIDE; GROUP; BOND; PHENOL

Derwent Class: A26; A89; G06; L03; P84; U11

International Patent Class (Main): G03F-007/012; G03F-007/038; G03F-007/075

International Patent Class (Additional): G03F-007/004; G03F-007/26;

H01L-021/027

File Segment: CPI; EPI; EngPI



Manual Codes (CPI/A-N): A06-A00E2; A06-A00E4; A12-E07C; A12-L02B2; G06-D03;
G06-D06; G06-F03C; L04-C05
Manual Codes (EPI/S-X): U11-A06A
Polymer Indexing (PS):

<01>

001 017; D01 D11 D10 D19 D18 D31 D50 D87 F31 F30 F81 F86; P1445-R F81;
S9999 S1627 S1605; L9999 L2391; L9999 L2186-R; M9999 M2186; H0282

002 017; ND04; ND01; Q9999 Q8684 Q8673 Q8606; K9814 K9803 K9790; K9869
K9847 K9790; Q9999 Q7476 Q7330; B9999 B4580 B4568; B9999 B4386
B4240; N9999 N5889-R; N9999 N6804-R N6655; N9999 N6893 N6655; B9999
B4988-R B4977 B4740; N9999 N6848 N6655

003 017; D01 D19 D18 D31 D50 D60 D87 F14 F36 F35; H0226

004 017; R00895 G1592 D01 D23 D22 D31 D42 D50 D84 F34; A999 A475

<02>

001 017; P0000

002 017; D67; Q9999 Q7772

Derwent Registry Numbers: 0895-U

9/9/3

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

009890084 **Image available**

WPI Acc No: 1994-170000/199421

XRAM Acc No: C94-077684

XRPX Acc No: N94-133886

**Photoresist relief image prodn. - having two or more layers and sub-half
micron features**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC); IBM CORP (IBMC)

Inventor: JAGANNATHAN P; LANG R; SACHDEV H; SACHDEV K G; SOORIYAKUMARAN R;
WHITAKER J R; LANG R N; SACHDEV H S

Number of Countries: 002 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 599762	A1	19940601	EP 93480140	A	19930921	199421 B
JP 6202338	A	19940722	JP 93221650	A	19930907	199434
US 5399462	A	19950321	US 92968773	A	19921030	199517
		US 94274571	A	19940713		
JP 2547944	B2	19961030	JP 93221650	A	19930907	199648

Priority Applications (No Type Date): US 92968773 A 19921030

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 599762 A1 E 11 G03F-007/075

JP 6202338 A 12 G03F-007/075

US 5399462 A 8 G03F-007/30 Cont of application US 92968773

JP 2547944 B2 12 G03F-007/075 Previous Publ. patent JP 6202338

Abstract (Basic): EP 599762 A

Prodn. of a photoresist relief image having at least two layers and
sub-half micron features comprises (a) applying a polymer under layer
to a substrate, having a refractive index of 1.58-1.7 at the wavelength
of the exposing UV radiation, and (b) overcoating the polymer
underlayer with a compsn. of photosensitive hydroxyaromatic
silsequixane polymer partially esterified with dinaphthoquinone gps.,

(c) imagewise exposing the photosensitive silsesquioxane to UV radiation to form a latent image, (d) developing the latent image to form a relief image in the polymer, and (e) transferring the relief image to the polymer underlayer with O₂ RE. The photosensitive polymer used in (b) has formula (I), where (1) R = H and/or Si(CH₃)₃, (2) Ar is p-hydroxyphenyl, p-methoxyphenyl or p-(2-diazo-1-naphthoquinonesulphonyloxy) phenyl being a naphthoquinone-4 or 5-residue, (3) n = 10-20, and (4) the molar ratio of p'-hydroxyphenyl gp. to p-methoxyphenyl gp. to p(2-diazo-1-naphthoquinonesulphonyloxy) phenyl gp. is 67:25:8 to 58:30:12.

Pref. the polymer underlayer has an optical density of at least 1 micron at the wavelength of the UV, and has a refractive index of 1.58-1.62. The substrate is silicon, silicon oxide, silicon nitride or gallium arsenide. The polymer is pref. less than 2 microns thick. The photosensitive silsesquioxane polymer is applied from a propylene glycol monomethylether acetate soln. having 15-20% solids, and is imagewise exposed with mid- or deep UV radiation.

USE/ADVANTAGE - For forming a microlithographic relief image having a width of less than 0.5 micron in a bilayer resist compsn. An improved bilayer lithographic process with a low cost, high sensitivity, environmentally stable silicon contg. resist for high throughput clustered mfg. of VLSI and ULSI devices.

Dwg.0/0

Abstract (Equivalent): US 5399462 A

Prod'n. of a photoresist direct image having at least 2 layers and having sub-half micron features comprises (a) applying to a substrate, a polymer underlayer having a refractive index of 1.58-1.7 at the wavelength of exposing UV radiation, (b) overcoating the underlayer with a compsn. comprising a photosensitive hydroxyaromatic silsesquioxane polymer partially esterified with diazonaphthoquinone gps. of formula (I), (c) imagewise exposing the polymer to UV radiation to form a latent image, (d) developing the latent image to form a relief image, and (e) transforming the relief image to the polymer under layer with O₂ RIE. In the formula, R₁-R₄ are each H, or Si(CH₃)₃; Ar₁-Ar₈ are each p-hydroxyphenyl (i), p-methoxyphenyl (ii) or p-(2-diazo-1-naphthoquinonesulphonyloxy)phenyl gp. of formula (iii), so that the molar ratio in the polymer of (i):(ii):(iii) is 67:25:8-58:30:12: DQ is 2-diazo-1-naphthoquinone-4 and/or 2-diazo-1-naphthoquinone-5 gps.; n is 5-9, and o and p are each 0 or 1.

USE - Used for mfg. VLSI and ULSI semiconductor devices.

Dwg.0/0

Title Terms: PHOTORESIST; RELIEF; IMAGE; PRODUCE; TWO; MORE; LAYER; SUB; HALF; MICRON; FEATURE

Derwent Class: A26; A89; G06; L03; P84; U11

International Patent Class (Main): G03F-007/075; G03F-007/30

International Patent Class (Additional): C08G-077/388; G03F-007/022; G03F-007/023; G03F-007/027; G03F-007/037; G03F-007/039; G03F-007/09; G03F-007/26; G03F-007/36; H01L-021/027

File Segment: CPI; EPI; EngPI

Manual Codes (CPI/A-N): A06-A00E4; A11-B05; A11-C02B; A12-E07C; A12-L02B2; G06-D06; G06-E04; G06-F03C; G06-G17; G06-G18; L04-C05

Manual Codes (EPI/S-X): U11-A06A

Polymer Indexing (PS):

<01>

001 017; H0033 H0011; G1434 G1423 G1398 D01 D65 F39 E00 D11 D10 D24 D22 D34 D42 D50 D69 D94 F- 7A; D19 D18 D32 D50 D92 F13 G1796 G1672

G1649 D01 F09 F07; G1796 G1672 G1649 D01 F09 F07 D19 D18 D32 D50
D92 F34; P1081-R F72

002 017; H0033 H0011; G1434 G1423 G1398 D01 D65 F39 E00 D11 D10 D23 D22
D24 D33 D42 D53 D51 D59; D19 D18 D32 D50 D92 F13 G1796 G1672 G1649
D01 F09 F07; G1796 G1672 G1649 D01 F09 F07 D19 D18 D33 D50 D93 F34;
P1081-R F72

003 017; H0033 H0011; G1434 G1423 G1398 D01 D65 F39 E00 D24 D22 D34 D42
D50 D93 F34; D19 D18 D32 D50 D92 F13 G1796 G1672 G1649 D01 F09 F07;
G1796 G1672 G1649 D01 F09 F07 D19 D18 D32 D50 D92 F34; P1081-R F72

004 017; ND01; K9676-R; K9698 K9676; K9574 K9483; Q9999 Q7476 Q7330;
B9999 B5243-R B4740; N9999 N7147 N7034 N7023

005 017; Q9999 Q7192 Q7114; K9610 K9483; B9999 B4444 B4240; B9999 B4455
B4240; N9999 N7090 N7034 N7023; B9999 B4262 B4240

<02>

001 017; P0226 P0282-R

002 017; ND01; K9676-R; K9698 K9676; K9574 K9483; Q9999 Q7476 Q7330;
B9999 B5243-R B4740; N9999 N7147 N7034 N7023

003 017; Q9999 Q7192 Q7114; K9610 K9483; B9999 B4444 B4240; B9999 B4455
B4240; N9999 N7090 N7034 N7023

<03>

001 017; D11 D10 D19 D18 D50 D93 F32 F30 F34 F81 F86; P1445-R F81;
M9999 M2073; M9999 M2186; M9999 M2813; S9999 S1627 S1605; M9999
M2799

002 017; ND01; K9676-R; K9698 K9676; K9574 K9483; Q9999 Q7476 Q7330;
B9999 B5243-R B4740; N9999 N7147 N7034 N7023

003 017; Q9999 Q8684 Q8673 Q8606; B9999 B4386 B4240; B9999 B5094 B4977
B4740

004 017; S- 6A; H0226

005 017; R08574 D01 D11 D10 D50 D63 D86 F34 F41; A999 A475

9/9/4

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

009653288 **Image available**

WPI Acc No: 1993-346838/199344

XRAM Acc No: C93-153517

XRPX Acc No: N93-267917

**Photosensitive silicon-contg. resist for water lithography processes -
contg. silsesquioxane and aromatic siloxane ester(s) with
diazo-naphthoquinone sulphonyl gps., for reactive ion etching, etc.**

Patent Assignee: INT BUSINESS MACHINES CORP (IBMC); IBM CORP (IBMC)

Inventor: SACHDEV H S; SACHDEV K G; WHITAKER J R

Number of Countries: 005 Number of Patents: 007

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 568476	A2	19931103	EP 93480025	A	19930323	199344 B
→ JP 6027671	A	19940204	JP 9386492	A	19930413	199410
EP 568476	A3	19940504	EP 93480025	A	19930323	199523
→ US 5422223	A	19950606	US 92876277	A	19920430	199528
		US 94274572	A	19940713		
EP 568476	B1	19951011	EP 93480025	A	19930323	199545
DE 69300616	E	19951116	DE 600616	A	19930323	199551
		EP 93480025	A	19930323		
JP 2744875	B2	19980428	JP 9386492	A	19930413	199822

Priority Applications (No Type Date): US 92876277 A 19920430; US 94274572 A 19940713

Cited Patents: No-SR.Pub; 1 Jnl.Ref; EP 229629; EP 365881; JP 1222254

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 568476 A2 E 12 G03F-007/075

Designated States (Regional): DE FR GB

JP 6027671 A 11 G03F-007/075

US 5422223 A 8 G03F-007/021 Cont of application US 92876277

EP 568476 B1 E 14 G03F-007/075

Designated States (Regional): DE FR GB

DE 69300616 E G03F-007/075 Based on patent EP 568476

JP 2744875 B2 13 G03F-007/075 Previous Publ. patent JP 6027671

EP 568476 A3 G03F-007/075

Abstract (Basic): EP 568476 A

The compsn. comprises a hydroxyaromatic siloxane polymer partially esterified with diazonaphthoquinoline gps. from (i) the poly(p-hydroxybenzylsilsequioxane)-co-p-methoxybenzylsilsequioxane-co-(2-diazo-1-naphthoquinonesulphonyloxy) silsequioxane of formula (I); (ii) the poly (p-hydroxyphenylsilsequioxane)-co-p-methoxy-phenylsilsequioxane-co-(2-diazo-1-naphthoquinolinesulphonyloxy) silsequioxane of formula (II); and (iii) the poly (methyl-p-hydroxybenzylsiloxane)-co-methyl-p-methoxy-benzyl siloxane-co-methyl-p-(2-di-1-naphthoquinonesulphonyloxy) siloxane of formula (III). In formula, R = H or Si(CH₃); Ar₂ is p-hydroxyphenyl (PHP) p-methoxyphenyl (PMP) or (PNQSOP) P-(2-diazo-1-naphthoquinone sulphonyloxy)phenyl of formula (i); DQ is 2-diazo-1-naphthoquinone-4 and/or 2-diazo-1-naphthoquinone-5 residue of formula (ii) and (iii) esp. and n = 10-20. The ratio of PHP: PMP: PNQSOP is 75:20.5 to 30:50:20.

USE/ADVANTAGE - Used as O₂RI barrier films in bilayer lithography processes. The system is environmentally stable, has high etch resistance enabling a less than 0.5 micron thick barrier film to be sufficient for pattern replication into more than 10 micron thick polyimide by dry etching, and is compatible with polyimide under layers. The films have high O₂ etch resistance, good resist sensitivity, no adhesion promoters is required, residue-free patterns are formed and no cracking or surface cracking of polyimide is observed during lift-off metallisation.

Dwg.0/0

Abstract (Equivalent): EP 568476 B

A photosensitive silicon-containing resist composition comprising an hydroxyaromatic siloxane polymer partially esterified with diazonaphthoquinone groups selected from the group consisting of the poly(p-hydroxybenzylsilsequioxane-co- p-methoxybenzylsilsequioxane-co-(2-diazo-1-naphthoquinonesulphonyl-oxy)benzyl silsequioxane represented by the formula (I), the poly(p-hydroxyphenylsilsequioxane-co-p-methoxyphenylsilsequioxane-co-(2-diazo-1-naphthoquinone-sulphonyloxy)phenyl silsequioxane) represented by the formula (II), and the poly(methyl-p-hydroxybenzylsiloxane-co- methyl-p-(2-diazo-1-naphthoquinonesulphonyloxy)benzyl siloxane) represent by the formula (III), wherein (1) R is either H or Si(CH₃)₃, (2) Ar is a

p-hydroxyphenyl, p-methoxyphenyl or p-(2-diazo-1-naphthoquinonesulphonyloxy)phenyl as represented respectively by the formulas (IV)-(VIII), (3) DQ is a 2-diazo-1-naphthoquinone-4 residue, a 2-diazo-1-naphthoquinone-5 residue as represented respectively by the formulas or mixtures thereof, (4) n is an integer from 10 to 20, and (5) the molar ratio of p-hydroxyphenyl group to p-methoxyphenyl group to p-(2-diazo-1-naphthoquinonesulphonyloxy) phenyl group is in the range from 75:20:5 to 30:50:20.

(Dwg.0/0)

Abstract (Equivalent): US 5422223 A

Photosensitive Si-contg. resist compsn. comprises a phenolic hydroxy cpd. contg. siloxane polymer partially esterified with diazonaphthoquinone gps. selected from gps. of formulae (I)-(III), where R1-R4 are H or Si(CH3)3; Ar1-Ar8 are p-hydroxyphenyl, p-methoxyphenyl and p-(2-diazo-1-naphthoquinone sulphonyloxy) phenyl so that the mol. ratio of the three gps. is 75:20:5-30:50:20, respectively; DQ is 2-diazo-1-naphthoquinone-4 residue, 2-diazo-1-naphthoquinone-5 residue or mixts.; n is 5-9; and o and p are 0 or 1.

Pref. the compsn. has a wt. average mol. wt. of 4,000-6,000. The resist compsn. also includes 80-95 wt.% of a solvent selected from propylene glycol monomethyl ether acetate, methoxy-2-propanol, ethyl lactate, ethoxyethyl propionate or mixts.

USE/ADVANTAGE - Used as imageable O2RIE barrier films for bilayer lithographic processes to pattern polyimide underlayers in the fabrication of multilayer interconnect structures. The systems are environmentally stable and provide defect free films with good reproducibility and shelf life.

(Dwg.0/0)

Title Terms: PHOTSENSITISER; SILICON; CONTAIN; RESIST; WATER; LITHO; PROCESS; CONTAIN; SILSESQUIOXANE; AROMATIC; SILOXANE; ESTER; DIAZO; NAPHTHOQUINONE; SULPHONYL; GROUP; REACT; ION; ETCH

Derwent Class: A26; A89; G06; L03; P84; U11; U14

International Patent Class (Main): G03F-007/021; G03F-007/075

International Patent Class (Additional): C08G-077/38; G03F-007/023;

G03F-007/36; H01L-021/027

File Segment: CPI; EPI; EngPI

Manual Codes (CPI/A-N): A05-J01B; A06-A00E4; A10-E07; A11-B05; A11-C02B;

A12-L02E; A12-L02F; G06-D04; G06-E04; G06-F03C; G06-G17; G06-G18; L04-C05

Manual Codes (EPI/S-X): U11-A06A; U11-C07C3; U14-H03A4B

Plasdoc Codes (KS): 0016 0020 0167 0170 0203 0224 0226 0231 1285 1306 1995

2001 2012 2014 2016 2021 2022 2198 2201 2318 2437 2439 2483 2498 2507

2549 2585 2597 2599 2607 2613 2616 2654 2718 2805 2809 3252 3317

Polymer Fragment Codes (PF):

001 017 02& 04- 05- 08& 19- 20& 229 230 231 24- 247 249 250 31- 316 332

353 38- 398 431 44& 443 524 54& 541 545 546 575 58- 583 589 596 597

600 658 723 724

002 017 04- 141 151 231 236 27- 359 431 466 47& 470 471 477 506 507 551

552 555 57& 63& 658 684 726

Polymer Indexing (PS):

<01>

001 017; D01 D11 D10 D19 D18 D32 D31 D50 D88 D89 D92 D93 F31 F30 F32

F34 F81 F86; P1445-R F81; H0179; M9999 M2153-R; M9999 M2777; M9999

M2799; M9999 M2813; M9999 M2062; S9999 S1627 S1605

002 017; ND06; ND01; ND09; Q9999 Q8684 Q8673 Q8606; K9847-R K9790;

B9999 B5094 B4977 B4740; K9574 K9483; K9676-R; K9712 K9676; K9869

K9847 K9790; B9999 B5243-R B4740; B9999 B4568-R; B9999 B4580 B4568;
B9999 B4637 B4568; B9999 B5301 B5298 B5276; N9999 N7090 N7034 N7023
; K9585 K9483

003 017; S- 6A; H0157

004 017; D01 D11 D10 D50 D87 F34 F41 D63; R08574 D01 D11 D10 D50 D63
D86 F34 F41; A999 A475; A999 A771

005 017; D01 D11 D10 D50 D84 F27 F26 F34; A999 A475; A999 A771

006 017; D01 D11 D10 D50 D63 D85 F27 F26 F41; A999 A475; A999 A771
<02>

001 017; P1081-R F72; L9999 L2391; L9999 L2095-R; M9999 M2095-R

002 017; ND01; Q9999 Q8708 Q8606; K9483-R; K9494 K9483; K9676-R; N9999
N7147 N7034 N7023; N9999 N7181 N7023; B9999 B3203-R B3190; K9552
K9483; B9999 B3849-R B3838 B3747; B9999 B5447 B5414 B5403 B5276;
B9999 B5425 B5414 B5403 B5276

9/9/5

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

009174528 **Image available**

WPI Acc No: 1992-301962/199237

XRAM Acc No: C92-134568

XRPX Acc No: N92-230989

**Generation of positive tone resist image used to form high density
electronic circuits - comprises forming film of poly(alkylphenyl) silane,
imagewise exposing the film to radiation and developing the film**

Patent Assignee: INT BUSINESS MACHINES CORP (IBM C); IBM CORP (IBM C)

Inventor: BAIER M E; MILLER R D; WALLRAFF G M

Number of Countries: 005 Number of Patents: 003

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 502662	A1	19920909	EP 92301706	A	19920228	199237 B
JP 6043655	A	19940218	JP 9213680	A	19920129	199412
US 5866306	A	19990202	US 91664259	A	19910304	199912
		US 92981903	A	19921123		
		US 9378808	A	19930617		

Priority Applications (No Type Date): US 91664259 A 19910304; US 92981903 A
19921123; US 9378808 A 19930617

Cited Patents: 1.Jnl.Ref; EP 130338; GB 2156834; JP 58153931

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 502662 A1 E 7 G03F-007/075

Designated States (Regional): DE FR GB

JP 6043655 A 5 G03F-007/075

US 5866306 A G03F-007/039 Cont of application US 91664259
Cont of application US 92981903

Abstract (Basic): EP 502662 A

Process comprisess (a) forming a film of poly(2-12C alkyl phenyl)
silane; (b) imagewise exposing the film to radiation; and (c)
developing the film.

An electronic circuit is made by forming the film over a
substrate, imagewise exposing the film to radiation, developing the
film, and forming the circuit in the developed film on the substrate.

The film is pref. poly(2-8C alkyl phenyl) silane, and is pref. poly(ethylphenyl)silane, poly(hexylphenyl)silane or poly(ethyl-t-butylphenyl) silane. The film may further comprise a sensitiser.

USE/ADVANTAGE - Photoresists are provided which generate positive tone resist images from which high density electronic circuits can be produced.

Dwg.1/1

Title Terms: GENERATE; POSITIVE; TONE; RESIST; IMAGE; FORM; HIGH; DENSITY; ELECTRONIC; CIRCUIT; COMPRISE; FORMING; FILM; POLY; ALKYLPHENYL; SILANE; IMAGE; EXPOSE; FILM; RADIATE; DEVELOP; FILM

Index Terms/Additional Words: ALKYLPHENYL

Derwent Class: A26; A89; G08; L03; P84; U11

International Patent Class (Main): G03F-007/039; G03F-007/075

International Patent Class (Additional): C08G-077/60; H01L-021/027

File Segment: CPI; EPI; EngPI

Manual Codes (CPI/A-N): A06-A00E4; A12-E07; A12-L02B2; G06-D06; G06-G17; G06-G18; L04-C06A

Manual Codes (EPI/S-X): U11-A06A

Plasdoc Codes (KS): 0000 0231 1307 1995 2016 2194 2198 2201 2311 2382 2423 2440 2718 2729 2740 2805

Polymer Fragment Codes (PF):

001 014 04- 05- 229 231 236 304 353 359 39- 402 405 431 433 445 477 524 623 627 628 658 726

9/9/6

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

008246437

WPI Acc No: 1990-133438/199018

XRAM Acc No: C90-058540

XRPX Acc No: N90-103464

Compsn. capable of being imaged - comprising organo-silicone and phenolic-novolak polymer

Patent Assignee: IBM CORP (IBM C); INT BUSINESS MACHINES CORP (IBM C)

Inventor: BABICH E D; FLAGELLO D G; HATZAKIS M; PARASZCZAK J R; SHAW J M; WITMAN D F

Number of Countries: 005 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
EP 365881	A	19900502	EP 89118364	A	19891004	199018 B
JP 2230249	A	19900912	JP 89276181	A	19891025	199043
→ US 5238773	A	19930824	US 88264482	A	19881028	199335
		US 90619675	A	19901129		
		US 92895245	A	19920608		
→ JP 94056492	B2	19940727	JP 89276181	A	19891025	199428

Priority Applications (No Type Date): US 88264482 A 19881028; US 90619675 A 19901129; US 92895245 A 19920608

Cited Patents: 2.Jnl.Ref; A3...9028; EP 147127; JP 63088544; NoSR.Pub; US 4722881

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

EP 365881 A

Designated States (Regional): DE FR GB
US 5238773 A 10 G03F-007/023 Cont of application US 88264482
Cont of application US 90619675
JP 94056492 B2 11 G03F-007/075 Based on patent JP 2230249

Abstract (Basic): EP 365881 A

Compsn. comprised (a) 5-50 (10-30) wt.% organosilicon cpd. having terminal quinone diazo gps.; and (b) 95-50 (90-70) wt.% phenolic-novolak polymer. Also claimed is prodn. of an image comprising providing on a substrate a layer of the above U.V. light-sensitive positive resist compsn., imagewise exposing the layer of the compsn. to imagine radiation in pref. pattern and developing the exposed layer to leave pref. pattern of light-sensitive light-sensitive photo-resist on the substrate. The substrate may be dey-etched using the pattern as a mask.

USE/ADVANTAGE - For positive resist materials. The compsn. is resistant to dry-processing and reactive ion etching in oxygen plasma while being capable of providing high resolution images, esp. in photolithography.

Dwg.0/0

Abstract (Equivalent): US 5238773 A

Positive alkaline developable photoresist and oxygen-contg. plasma resistant compsn. comprises (i) radiation sensitive organosilicon cpd. having terminal quinoline diazide gps. of formula (I), (II), (III), (IV), (V) or (VI) and (ii) phenol-novolak polymer. Amt. are 5-50 (10-30) wt. % (i) and 95-50 (90-70) wt. % (ii). (Q = quino diaz. gp; m = 1-12; n = 0-10 (+3); X = 1-10 (+2); b = 1-4; a = 4-6; R, R1 = H, hydrocarbon, halohydrocarbon, epoxy, mercapto or cyanoaldehyde.)

USE/ADVANTAGE - Used in photolithography and for imaging a optical lithography tools and multilayer ceramic packaging. Provides high-resolution images.

Dwg.0/0

Title Terms: COMPOSITION; CAPABLE; IMAGE; COMPRISE; ORGANO; SILICONE; PHENOLIC; NOVOLAK; POLYMER

Derwent Class: A21; A26; A89; E11; G06; L03; P84

International Patent Class (Main): G03F-007/023; G03F-007/075

International Patent Class (Additional): G03F-007/039; G03F-007/07; H01L-021/027

File Segment: CPI; EngPI

Manual Codes (CPI/A-N): A05-C01B; A08-M08; A12-L02E; E05-E01; G06-D04; G06-F03C; G06-F03D; L03-H04E2; L04-C05

Plasdoc Codes (KS): 0036 3003 0202 0203 0205 0206 0207 0211 0222 0224 0226 1277 1282 1304 1305 1306 1359 1517 1995 2014 2016 2022 2194 2198 2201 2311 2318 2382 2427 2507 2585 2607 2654 2718 2805

Polymer Fragment Codes (PF):

001 014 02& 05- 062 080 13- 140 180 213 214 216 226 229 231 236 250 304 31- 311 316 332 334 353 359 38- 398 402 405 42- 431 44& 477 524 541 545 546 575 583 589 596 658 681 724 726

Chemical Fragment Codes (M3):

01 B514 B614 B713 B720 B744 B760 B794 B796 B798 B799 B833 B840 F011 F012 F013 F015 F016 F017 F019 F100 F170 F199 G001 G010 G011 G012 G013 G014 G015 G016 G019 G020 G021 G022 G029 G030 G039 G040 G050 G100 G111 G112 G113 G221 G223 G299 G341 G552 G553 G562 G563 G599 H4 H401 H402 H403 H404 H405 H441 H442 H443 H444 H481 H482 H483 H484 H498 H581 H582 H583 H584 H600 H602 H603 H609 H641 H642 H643 H681 H682 H683 H684 H685 H689 H713 H716 H721 H722 H723 H8 J011 J012 J013

J014 J231 J232 J561 J562 J563 J581 J582 J583 K0 K432 K499 K5 K533
 K599 L145 L199 L7 L722 L724 M121 M122 M124 M129 M131 M139 M147 M149
 M210 M211 M212 M213 M214 M215 M216 M220 M221 M222 M223 M224 M225
 M226 M231 M232 M233 M240 M250 M280 M281 M282 M283 M311 M312 M313
 M314 M315 M316 M320 M321 M322 M323 M331 M332 M333 M334 M342 M343
 M344 M351 M361 M383 M391 M392 M393 M411 M510 M520 M521 M522 M523
 M530 M531 M532 M533 M540 M541 M542 M543 M781 M903 Q344 Q349 R043
 00012 00422 69460

Ring Index Numbers: 00012; 00422; 69460

9/9/7

DIALOG(R)File 351:Derwent WPI

(c) 2003 Thomson Derwent. All rts. reserv.

004148669

WPI Acc No: 1984-294209/198447

XRAM Acc No: C84-125030

XRPX Acc No: N84-219562

Formation of resist in making electronic device - from silicon contg.

methacrylate ester

Patent Assignee: AMERICAN TELEPHONE & TELEGRAPH CO (AMTT); AT & T BELL
 LAB (AMTT)

Inventor: REICHMANIS E; SMOLINSKY G

Number of Countries: 003 Number of Patents: 004

Patent Family:

Patent No	Kind	Date	Applicat No	Kind	Date	Week
US 4481049	A	19841106	US 84585850	A	19840302	198447 B
JP 60229026	A	19851114	JP 8540345	A	19850302	198601
KR 9301671	B1	19930308	KR 851321	A	19850302	199418
JP 95099435	B2	19951025	JP 8540345	A	19850302	199547

Priority Applications (No Type Date): US 84585850 A 19840302

Patent Details:

Patent No Kind Lan Pg Main IPC Filing Notes

US 4481049 A 8

JP 95099435 B2 12 G03F-007/075 Based on patent JP 60229026

KR 9301671 B1 G03F-007/26

Abstract (Basic): US 4481049 A

In fabricating a device, a radiation sensitive region (3) is formed on a substrate (1) and at least part of the region is patterned. The region (3) is formed by a polymerisation process using a methacrylate compd. of the formula $\text{CH}_2=\text{C}(\text{CH}_3)\text{COOR}$, (I) where R contains silicon. The Tg of the polymerised compsn. is above 50 deg.C. The polymerised compsn. contains at least 6 wt% Si.

R in (I) is $(\text{CH}_3)_3\text{SiCH}_2-$; $(\text{CH}_3)_3\text{SiCH}_2\text{CH}_2-$; $(\text{CH}_3\text{O})_3\text{SiCH}_2-$; $(\text{CH}_3)_3\text{SiCH}_2\text{CH}_2\text{CH}_2-$; $(\text{CH}_3\text{O})_3\text{SiCH}_2\text{CH}_2-$; $(\text{CH}_3\text{O})_3\text{SiCH}_2\text{CH}_2\text{CH}_2$; 3-(pentamethyldialoxy) propyl; 3-(bis (trimethylsuloxy)methyl silyl)propyl or 3-(tris(trimethylsiloxy) silyl)propyl. It is copolymerised with an oxime or indanone compd.

USE/ADVANTAGE - The process is used to make electronic devices by lithographic techniques. It can be used as part of a bilevel resist with an underlying planarising layer (5) and can be used with positive exposure to U.V. radiation to give a resolution of 0.75 microns or finer.

1/1

Title Terms: FORMATION; RESIST; ELECTRONIC; DEVICE; SILICON; CONTAIN;
METHACRYLATE; ESTER

Derwent Class: A14; A89; G06; L03; P78; P83; P84; U11

International Patent Class (Main): G03F-007/075; G03F-007/26

International Patent Class (Additional): B44C-001/22; C03C-015/00;

C03C-025/06; G03C-001/71; G03C-005/00; H01L-021/30

File Segment: CPI; EPI; EngPI

Manual Codes (CPI/A-N): A04-A; A04-F06E; A12-E07; A12-L02B; G06-D06;

G06-F03C; L03-D03B; L03-H04E2

Manual Codes (EPI/S-X): U11-C04

Plasdoc Codes (KS): 0202 0231 1277 2002 2019 2020 2027 2066 2382 2386 2396

2400 2478 2654 2667 3279 2805 0493 0494 0500 0501 0598 0599 3152 0418

0502 0600

Polymer Fragment Codes (PF):

001 014 034 04- 05- 074 076 077 081 085 140 229 231 240 264 266 402 405

408 409 41- 419 420 466 467 473 524 575 58& 596 604 608 623 627 658

688 691

002 014 034 04- 05- 074 075 077 081 085 140 229 231 240 264 266 27& 402

405 408 409 41- 419 420 466 467 473 524 575 58& 59& 596 604 608 623

627 658 691

Derwent Registry Numbers: 0610-U